

A New Shore-Bug from Death Valley, California

(Heteroptera : Saldidae)

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In the course of a general investigation of aquatic insects of Saratoga Springs, Death Valley, California, Dr. John Belkin collected a series of *Pentacora*. The specimens were submitted to R. L. Usinger who recognized them as representing an undescribed species and referred them to me. A general description of this interesting area is given in Belkin and McDonald (1956).

Pentacora saratogae Cobben, new species

HOLOTYPE MALE.—For measurements see Table 1, specimen a. Rather stout, predominantly yellow grayish colored, short haired, macropterous. Head: moderately shining, with short silvery pubescence, one erected dark bristle on the vertex posteriorly of each ocellus in addition to the three pairs of brown trichobothria; vertex, gula, and a quadrangular area around ocelli black, a yellowish stripe along the inner side of the eye connecting a round yellowish spot on the vertex; ocelli large, pale, separated from each other less than its own diameter; eyes grayish, with few very short hairs; rostrum brownish, extending to the bases of the hind coxae. Thorax: Pronotum (Fig. 1c) three times wider as long medially, covered by adpressed silvery hairs and with two dark erected bristles on the front side of the dome; moderately shining; pale yellowish colored, dome black with pale markings as figured; lateral sides slightly concave, dome flattened with transverse groove. Scutellum black with light V sign at apex and an oblique pale stripe in the anterior edges. Ventral side of thorax yellowish brown, mid-ventral parts of meso- and metathorax black. Wings: Hemelytra entirely pale, veins of corium and membrane fuscous, regularly covered with short brown hairs. Hind wings reaching almost the top of the hemelytra. Abdomen: Segments yellowish, tergites and anterior border of sternites black. Coupling plate with seven to nine short dark pegs and some long hairs at the inner edge. Extremities: Antennae light yellowish, segments one and two laterally brown; with short silvery hairs, segment one moreover with some dark bristles, segments three and four moreover with scattered semi-long, erected, pale hairs; segment two as long as segments three and four, segment three longer than four. Legs pale, coxae of front and midlegs proximally and hind coxae almost entirely black, femora dark brownish on back side, top of tibiae and last tarsal segment fuscous, beset with short silver hairs and dark spines. Genital structures: Paramere as figured (Fig. 3a). Parandria, phallus, median endosomal structure, filum gonopori as in *P. sphacelata* (Figs. 1a, b; 2c-f of *P. sphacelata*).

Total length 5.31 mm, total width 2.20 mm.

ALLOTYPE FEMALE.—For measurements see Table 1, specimen b. Differing from holotype only in slightly larger dimensions, concavity of pronotal sides more dis-

Table 1. Measurements of specimens from the type series of *Pentacora saratogae* Cobben. (Measurements in mm).

Specimen	Sex	Total Length	Total Width	Head			
				Total Width	Width of Vertex	Narrowest Width of Frons	Ocellus Width
a	♂ holotype	5.31	2.20	1.12	0.49	0.40	0.08
b	♀ allotype	5.72	2.46	1.27	0.53	0.45	0.10
c	♂ paratype	4.85	2.05	1.19	0.45	0.39	0.10
d	♀ paratype	5.40	2.39	1.26	0.50	0.45	0.10
e	♀ paratype	5.72	2.48	1.30	0.55	0.46	0.10

Specimen	Head Distance Between Ocellus	Pronotum			Antenna				Hind Leg		
		Length	Width Collar	Width Base	1	2	3	4	ti	2ta	3ta
a	0.06	0.60	0.80	1.82	0.30	1.13	0.63	0.50	2.40	0.42	0.50
b	0.07	0.65	0.85	2.03	0.40	1.20	0.65	0.55	2.60	0.43	0.50
c	0.05	0.60	0.80	1.70	0.40	1.00	0.60	0.54		0.40	0.45
d	0.07	0.63	0.80	1.91	0.37	1.15	0.63	0.55	2.50	0.45	0.48
e	0.07	0.67	0.85	2.03	0.40	1.20	0.63	0.55	2.60	0.48	0.53

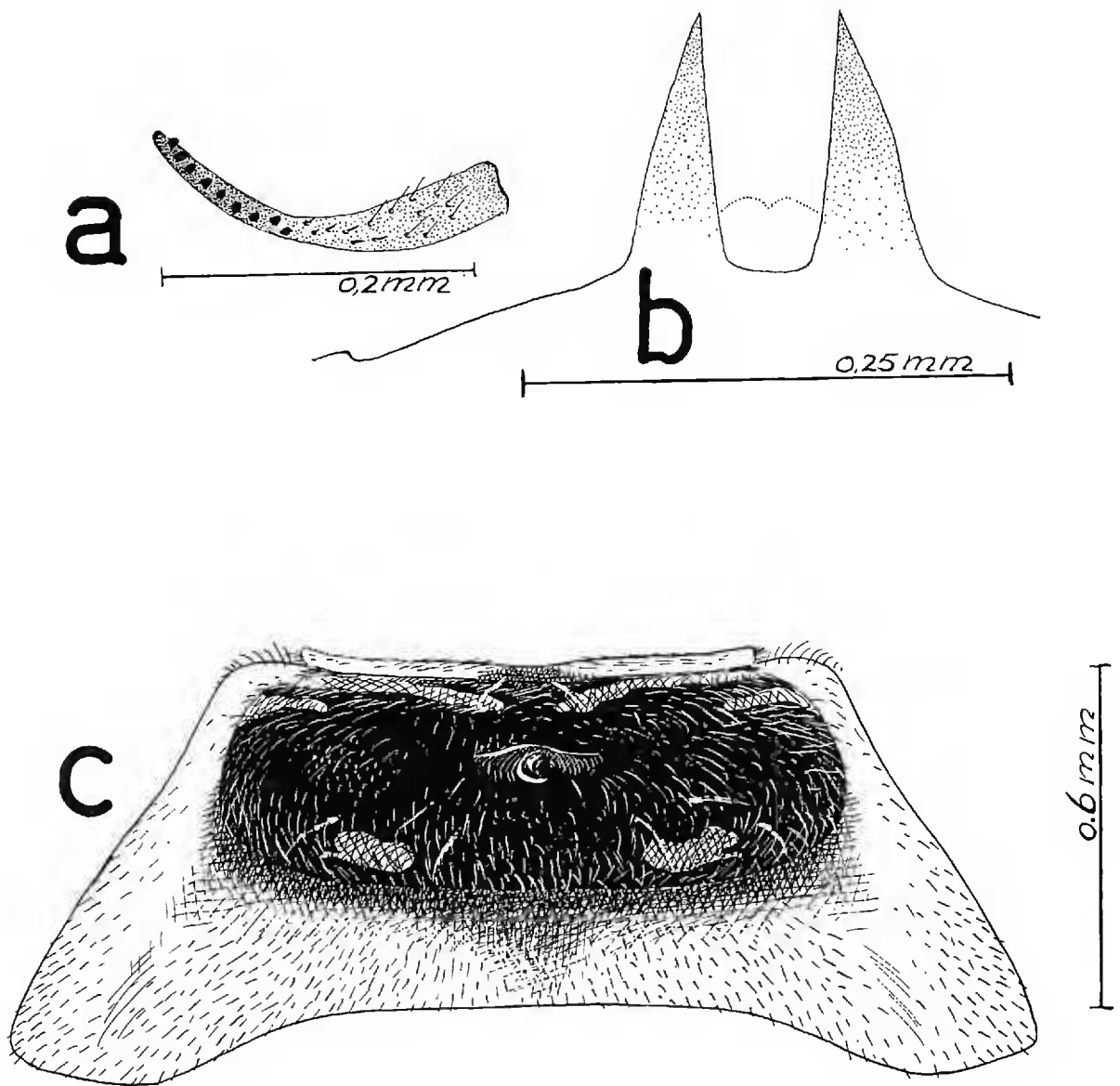
tinct, less extensive dark markings on ventrum and legs; pregenital plate entirely pale, not produced backwards medially; exocorium preapically with a dent marking the place to which the coupling plate of the male is fixed during copulation.

Total length 5.72 mm, total width 2.46 mm.

PARATYPES, 1 male, 8 females.—For measurements see Table 1, specimens c, d, e. Agreeing with the description of holotype and allotype. Total length 4.85 to 6.00 mm, total width 2.05 to 2.53 mm.

MATERIAL.—*Holotype male*, allotype, and four female paratypes from: SARATOGA SPRINGS, DEATH VALLEY, CALIFORNIA, 2 December 1954, collected by Dr. J. N. Belkin. The remaining paratypes we found in a saldid collection of the Leningrad Museum, sent to us by Dr. I. Kerzhner. These latter specimens were also collected in Death Valley, California, at Bad Water, 25 March 1936 by Dobrshansky. All types and paratypes are in the California Academy of Science, San Francisco, except the following: one male and one female paratype in the collection of Cobben; four female paratypes in the Leningrad Museum.

This new species has its closest affinities with *P. sphacelata* (Uhler, 1877). The latter species is predominantly halophilous and has been reported from the east coastal states of North America, Missouri, Utah,

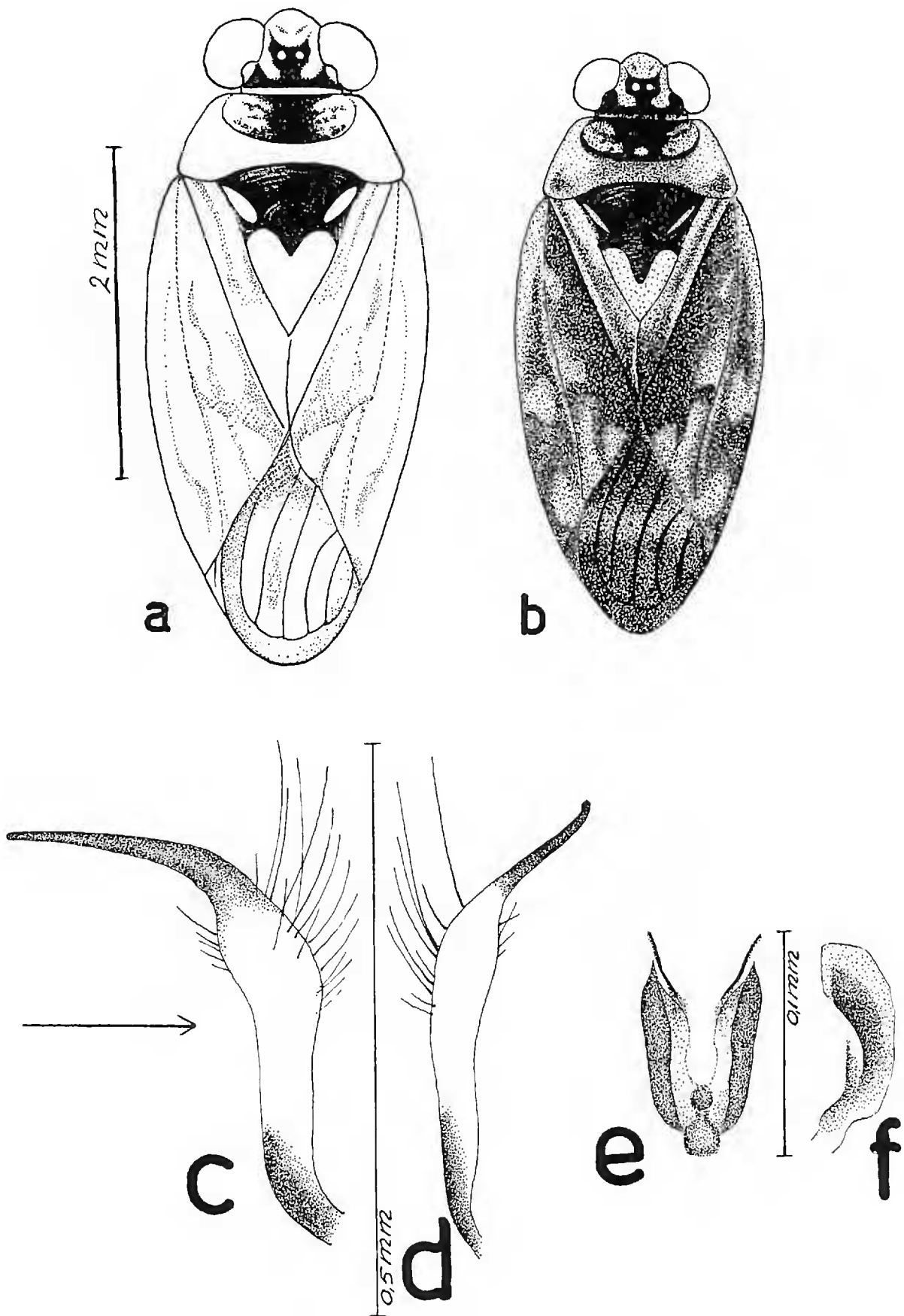


EXPLANATION OF FIGURES

Fig. 1. a, b, *Pentacora sphacelata* (Uhler: a, coupling-plate of male, front view; b, parandria. c, *Pentacora saratogae* Cobben, pronotum of holotype.

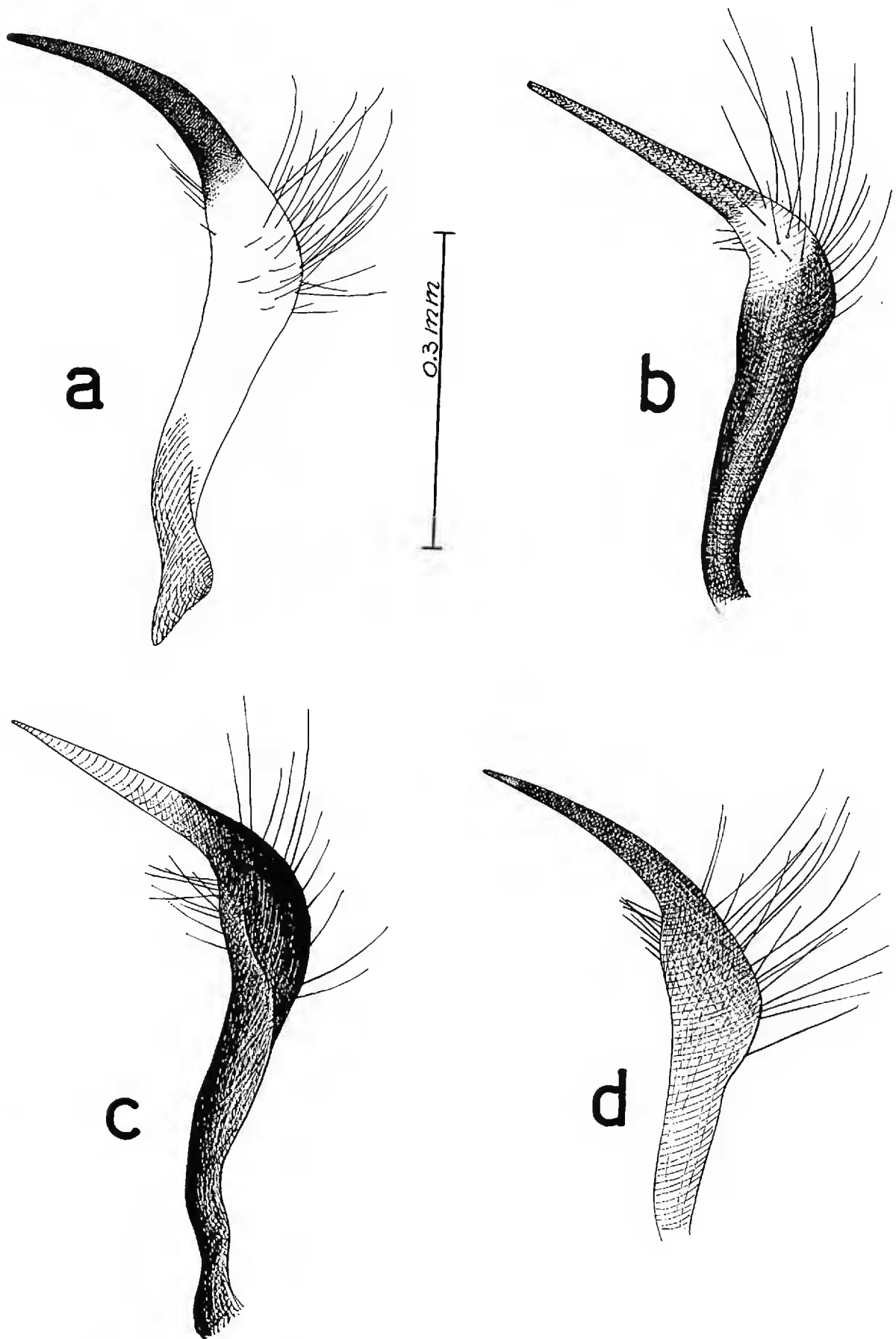
California, Texas, Mexico, West Indies, Trinidad, Peru, and from the west part of the Mediterranean region in the Old World. The most southern record, Peru (Galápagos, Albemarle Is.), refers to the material described by Heidemann (1901) as *Salda rubromaculata*, a species which Drake (1954) after studying the types synonymized with *P. sphacelata*. Recently additional *P. sphacelata* from the Galápagos have been collected by R. L. Usinger (Tortuga Bay, Lagoon, Sta. Cruz, 10 February 1964). The present author had the opportunity to compare this material with specimens from Central and North America and, indeed, found no significant differences.

The specimens of *P. saratogae* Cobben, collected in 1954, all have the second antennal segment about as long as the segments 3 + 4. Of the



EXPLANATION OF FIGURES

Fig. 2. *Pentacora sphacelata* (Uhler): a, male from St. Martin; b, male from Curaçao (Caribbean region); c, d, left paramere: c, front view; d, as observed in the direction of the arrow in c; e, f, median endosomal structure: e, front view; f, left view.



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Fig. 3. Left paramere of: a, *Pentacora saratogae* Cobben, holotype; b, *P. signoreti* (Guerin); c, *P. ligata* (Say); d, *P. hirta* (Say).

sample from 1936 all female specimens lack the antennae. The single male bears only one antenna of which the segment is only 0.87 times the length of 3 + 4, tending more to the conditions in *P. sphacelata*. The body dimensions of the specimen in question lie considerably below that of all other material at hand. It may be that the second segment grows proportionately longer in larger individuals. A similar allometric tendency has been traced in other saldids.

The differences between *P. saratogae* Cobben and *P. sphacelata* can be tabulated as follows:

<i>P. saratogae</i>	<i>P. sphacelata</i>
Total length generally above 5.2 mm, total width generally above 2.1 mm.	Total length below 5.2 mm, total width below 2.1 mm.
Segment 2 of antennae longer than 0.85 × the length of segments 3 + 4.	Segment 2 of antennae only 0.65–0.82 × the length of segments three + four.
First antennal segment with dark base.	First antennal segment with light base.
Lateral sides of pronotum concave (Fig. 1c).	Lateral sides of pronotum straight or slightly convex (Figs. 2a, b).
Pronotum and scutellum not obviously shining.	Pronotum and scutellum shining.
Dome of pronotum more extensively black colored (Fig. 1c).	Dome of pronotum less extensively black colored (Figs. 2a, b).
Hemelytra pale, with a weak tendency to shadowing.	Hemelytra with greater tendency to darkening (Figs. 2a, b).
Femora dorsally homogeneously dark.	Femora dorsally with scattered dark spots.
Paramere with processus hamatus curved half-way (Fig. 3a).	Paramere with processus hamatus curved at its base (Fig. 2c).

I am grateful to Dr. J. N. Belkin, Professor R. L. Usinger, and Dr. J. Kerzhner for the opportunity of investigating the new species.

LITERATURE CITED

- BELKIN, JOHN N. AND WILLIAM A. McDONALD. 1956. A Population of *Uranotaenia anhydor* from Death Valley, with descriptions of all species and discussion of the complex (Diptera, Culicidae). Ann. Entomol. Soc. Amer., 49 (2): 105–132.
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